

POLYMER ENCAPSULATED ELECTRICAL DEVICES

Abstract of the Disclosure

Improved encapsulated, overmolded and/or underfilled electrical components having a complete encapsulation, overmolding and/or underfilling with a coefficient of thermal expansion that is uniform and substantially free of gradients includes a polymeric matrix and an inorganic filler having a platelet geometric structure. The platelet structure of the filler allows a desirable coefficient of thermal expansion to be achieved using a very low level of filler material. This low level of filler material facilitates lower viscosity during forming of the encapsulation and/or overmolding, thereby facilitating complete filling of a mold cavity and underfilling of space between a circuit board and a semi-conductor chip electrically connected to the circuit board. In addition, the low viscosity has processing advantages that reduce the potential for damage to electrical components during encapsulation, overmolding and/or underfilling.